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Sakata et al.(10) **Pub. No.: US 2002/0101410 A1**(43) **Pub. Date: Aug. 1, 2002**(54) **TOUCH PANEL AND ELECTRONIC DEVICE**(52) **U.S. Cl. 345/173**(75) **Inventors:** **Hidefumi Sakata**, Nagano-ken (JP);
Tetsuhiko Takeuchi, Nagano-ken (JP);
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Shohei Yoshida, Nagano-ken (JP)(57) **ABSTRACT**

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The present invention provides a touch panel having pluralities of projections, each of the projections having a predetermined shape, formed on inner surfaces of a lower substrate and an upper substrate, respectively. The projections being formed in at least two directions with a substantially periodical pitch that is shorter than any wavelength of visible light. The touch panel can also include a lower transparent electrode and an upper transparent electrode formed over the inner surfaces of the lower substrate and the upper substrate having the pluralities of projections, respectively. The cross-sectional area of each of the projections parallel to the outer surface of the lower substrate is configured to decrease continuously from bottom to top of the projection. The same applies to the combination of each of the projections, the bottom and a top thereof, and the upper substrate. Accordingly, this structure reduces the light reflection and diffraction at the boundary between an air space and the transparent electrode, thereby providing a resistive contact-type touch panel or a electrostatic capacitive coupling-type touch panel having high light transmittance.

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